BABUSHKIN, V.A.

Sampling methods and the sampling grid spacing in the Mirgalimsay deposit. Izv.vys.ucheb.zav.; geol.i razv. 2 no.5:98-106 My '59. (MIRA 12:12)

1. Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze.
(Mirgalimsay region (Kazakhstan)--Ores--Sampling and estimation)

BABUSHKIN, V.A.

Calculating the spacing between test holes in prospecting for stockworks. Izv. vys. ucheb. zav.; geol. i razv. 2 no.6:84-86 Je '59 (MIRA 13:3)

1. Moskovskiy geologorazvedochnyy institut im. S. Ordzhonikidze. (Boring)

BABUSHKIN, V.A.

Assaying holes drilled in molybdenum stockworks and determining the coefficient K in G.Chechett's formula. Izv.vys.ucheb.zav.; 3 no.1:107-111 Ja '60. (MIRA 13:7)

1. Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze. (Molybdenum ores)

BABUSHKIN, V.A.

Determining the metal content in the bordering ores of stockworks. Izv. vys. ucheb. zav.; geol. i razv. 3 no.5:105-108 My '60. (MIRA 13:11)

1. Moskovskiy geologorazvedochnyy institut imeni S.Ordzhonididze. (Ore deposits)

BABUSHKIN, V.A.

Determining hole spacing in prospecting for Mirgalimsa type deposits. Izv.vys.ucheb.zav.; geol.i razv. 5 no.9:92-99 S '62. (MIRA 16:1)

1. Moskovskiy geologorazvedochnyy institut im. S.Ordzhonikidze. (Kazakhstan--Prospecting)

ARISTOV, V.V.; KREYDELEV, F.P.; KREYTER, D.S.; RUCHLOV, I.A.; BARUSHKIN, V.A.; TROFIMOV, N.N., prepod. KREYTER, V.M., prof., retsenzent; AL'BOV, M.N., prof., retsenzent; KOZERENKO, V.N., prof., retsenzent; KRAYNO, S.V., st. prepod., retsenzent; BELYAKOVA, Ye.V., red.

[Manual for laboratory work in the course on prospecting and exploration for mineral deposits] Rukovodstvo dlia prakticheskikh zaniatii po kursu poiskov i razvedki mestorozhdenii poleznykh iskopaemykh. Moskva, Vysshaia shkola, 1965. 253 p. (MIRA 18:9)

BABUSHKIN, V. D.

"Relation of the Flow of a Well in Water-Bearing Sand to Its Length and the Position of Its Filter," report given at Soviet Conference on Construction Problems of Water-Well Filters, Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, No 5, 1950.

All-Union Research Institute of Water Supply, Sewerage, Hydrotechnical Constructions, and Engineering Hydrogeology.

Digest W-15118, 10 Nov 50

BABUSHKIN, V. D.

BABUSHKIN, V. D.

"Determination of the Water Permeability of Alluvial Rocks Under the Bed of Rivers," Razvedka i Okhrana Nedr, No. , pp 45-53, 1954

SO: W-31[illegible], 2 Sep 55

BABUSHKIN, V.D.

Determining water permeability of anisotropic rock by means of experimental pumping. Razved. i okh.nedr 20 no.6:50-53 N-D '54. (MLRA 9:2)
(Permeability)

BABUSHKIN, V.D.

ABRAMOV, S.K., kandidat tekhnicheskikh nauk; BABUSHKIN, V.D., kandidat tekhnicheskikh nauk; MIKHAYLOV, K.A., doktor tekhnicheskikh nauk, professor, redaktor; MEYSTER, V.A., kandidat tekhnicheskikh nauk, redaktor; BARSOV, M.V., redaktor; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor.

[Methods of calculating the inflow of water for wells] Metody rascheta pritoka vody k burovym skvazhinam. Pod obshchei red. K.A.Mikhailova. Moskva, Gos.izd-vo lit-ry po stroit. i arkhitekture, 1955. 383 p. (MIRA 8:4)
(Wells) (Hydraulics)

BABUSHKIN, V.D.; RAYEVSKIY, S.P.

Determining the filtration anisotrophy of aquiferous fromations by experimental pumping. Razved. i okh.nedr 23 no.1:49-54 Ja '57. (MLRA 10:3)

1. Gosudarstvennyy Trest po proyektirovaniyu energeticheskikh predpriyatiy.
(Water, Underground)

BABUSHKIN, V.D., kand.tekhn.nauk.

Flow of water into a bore hole in a rock mass composed of three layers. Podzem.gaz.ugl. no.4:41-48 '57. (MIRA 11:1)
(Water, Underground)

SOV-132-58-8-10/16

AUTHORS: Babushkin, V.D., Glazunov, I.S. and Shevchenko, N.G.

TITLE: Methods of Determining Exploitable Reserves for Pumping Stations on Large Reservoir of Fresh Water (K metodike opredeleniya ekspluatatsionnykh zapasov dlya vodozaborov na krupnykh linzakh presnykh vod)

PERIODICAL: Razvedka i okhrana nedr, 1958, Nr 8, pp 43-50 (USSR)

ABSTRACT: An enormous reservoir of fresh water was discovered lately in the Lower Karakums of West Turkmenia. The area extends over approximately 2,000 square km and the reserves of the water are estimated to amount to 10 cubic km. The fresh water forms the surface and the saline and mineralized waters are located at lower depths. To avoid the drawing out of saline water, the authors propose the installation of twin bore holes, so that the pumping of both, salted and sweet water could proceed simultaneously. By analytical calcul-

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ations, the authors show that the volume of pumped saline and fresh water must be equal; That the mixing of both qualities of water would not take place for at least 25 years as long as the pumping stations are installed at least 2 or 3 km from the boundaries of these waters. There are 4 diagrams and 1 table and 10 Soviet references.

ASSOCIATION: VSEGINGEO; Zapadno-Turkmenskaya geologicheskaya ekspeditsiya (The West-Turkmenian Geological Expedition)

1. Water--Sources 2. Water--Chemical properties
3. Mathematics--Applications

BABUSHKIN, V. D., Doc Tech Sci, "METHODS OF ~~COMPUTING~~ calculating subsidence via wells WATER ~~DRAWDOWN BY MEANS OF INTERSTICES~~ AND PROBLEMS OF WATER INFLOW TO ~~INCOMPLETED~~ unfinished EXCAVATIONS IN NONUNIFORM STRATA." Leningrad, 1961. (Min of Construction of Electric Power Stations USSR. All-Union Sci Res Inst of Hydraulic Engineering imeni B. Ye. Vedeneyev). (KL-DV, 11-61, 215).

BABUSHKIN, V. D.; PROKHOROV, S. P.; SAAR, A. A.

"On recharge of artesian aquifers as a result of water release from clay layers"
Presented at the Symposium on Methods of Evaluating Resources of Underground Water with Emphasis on Arid Zone Problems, Athens 11-20 Oct 1961

BABUSHKIN, V.D.; GLAZUNOV, I.S.; GOL'DBERG, V.M.; MINKIN, Ye.L., kand. geol.-miner. nauk, retsenzent; SEMENOVA, S.M., red.; ENTIN, M.L., red. izd-va; BYKOVA, V.V., tekhn. red.

[Basic principles in the exploitation and estimation of reserves of large lenses of fresh water]Osnovnye printsipy ekspluatatsii i otsenka zapasov krupnykh linz presnykh vod. Moskva, Gosgeoltekhizdat, 1962. 101 p. (MIRA 15:10)
(Water resources development)

AL'TOVSKIY, M.Ye.; CHAPOVSKIY, Ye.G.; BABUSHKIN, V.D.; BINDEMAN, N.N.; LAPTEV, F.F.[deceased]; SOKOLOV, I.Yu.; CHALISHCHEV, A.M.[deceased]; PROKHOROV, S.P.; TOKAREV, A.N.; KOROTEYEV, A.P.; ABRAMOV, S.K.; KONOPLYANTSEV, A.A., red.; PRIKLONSKIY, V.A., red. deceased]; SPITSYN, N.I., red.; MARINOV, N.A., red.; KULICHIKHIN, N.I., red.; GARMONOV, I.V., red.; LYUBCHENKO, Ye.K., red. izd-va; POTAPOV, V.S., red. izd-va; GUROVA, O.A., tekhn. red.

[Hydrogeologist's handbook] Spravochnik gidrogeologa. Pod obshchei red. M.E.Al'tovskogo. Moskva, ostsoltekhizdat, 1962. 615 p. (MIRA 15:7)
(Water, Underground)

BABUSHKIN, V. D.; GLAZUNOV, I. S.; GOL'DBERG, V. M.

Method for utilizing fresh water lenses and basic prerequisites for estimating their reserves. Vop. gidrogeol. i inzh. geol. no.20:71-89 '62. (MIRA 16:4)

(Turkmenistan--Water, Underground)

BABUSHKIN, V.D.; PROKHOROV, S.P.

Evaluation of the total flow of water into mines of coal deposits. Razved. i okh. nedr 28 no.9:55-61 S '62.
(MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

(Mine water)

BABUSHKIN, V.D.; GLAZUNOV, I.S.

Method for determining the filtration properties of rocks in the presence of zones with varying permeability in the plane. Biul. nauch.-tekh.inform VIMS no.1:33-37 '63. (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

BABUSHKIN, V.D.

Method of hydrogeological calculations taking into consideration the nonuniformity of rocks in the plane. Biul. nauch.-tekh. inform. VIMS no.2:26-29 '63. (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

LEBEDEV, A.V.; ROGOVSKAYA, N.V.; BABUSHKIN, V.D.

"Methodology of hydrogeological investigations" by P.P.Klimentov. Reviewed by A.V.Lebedev, N.V.Rogovskaia, V.D.Babushkin. Sov.geol. 6 no.2:157-159 F '63. (MIRA 16:4)

(Water, Underground)
(Klimentov, P.P.)

BINDEMAN, Nikolay Nikolayevich. Prinimali uchastiye: YAZVIN, L.S.; BABUSHKIN, V.D.; SEMENOVA, S.M., nauchnyy red.; KOLOSHINA, T.V., red. izd-va; SHMAKOVA, T.M., tekhn. red.

[Evaluation of underground water resources for their use] Otsenka ekspluatatsionnykh zapasov podzemnykh vod; metodicheskoe rukovodstvo. Moskva, Gosgeoltekhizdat, 1963. 202 p. (MIRA 16:7)

(Water, Underground)

BABUSHKIN, Vul'f Davydovich; PROKHOROV, Sergey Petrovich; LOSEV, Feliks Ionovich; PREDKO, Aleksandr Georgiyevich. Prinimal uchastiye OSTAPENKO, T.V.

[Methods of calculating the general inrush of water into coal mines] Metody rascheta obshchego pritoka vody v shakhty ugol'nykh mestorozhdenii. [By] V.D.Babushkin i dr. Moskva, Izd-vo "Nedra," 1964. 122 p. (MIRA 17:6)

BABUSHKIN, V.D.; KLEYMAN, D.R.; KUDRIN, A.Ye.

Predicting a reduction in the level of the underground waters in the Kirov Krivoy Rog Basin Iron Ore Mine. Razved. i okh. nedr. 30 no.6:39-43 Je '64. (MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii i TsNIIgorosusheniye.

BABUSHKIN, V.D.

Study of artesian waters in relation to their exploitation in sea shore region. Trudy VSEGINGEO no.10:48-56 '64.
(MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

SILIN-BEKCHURIN, Aleksey Ivanovich; TATARINOVA, Ye.I., red.; BABUSHKIN, V.D., doktor tekhr.nauk, nauchn.red.; KUDELIN, B.I., doktor geol.-miner. nauk, prof., nauchn. red.; PLOTNIKOV, N.I., doktor geol.-miner. nauk, prof., nauchn. red.

[Dynamics of underground waters; with the fundamentals of hydraulics] Dinamika podzemnykh vod; s osnovami gidravliki. Moskva, Izd-vo Mosk. univ., 1965. 379 p.

(MIRA 18:12)

BABUSHKIN, V.F., mashinist-instruktor; VLASOV, V.I., mashinist-instruktor

Characteristics of operating N8 electric locomotives during the winter months. Elek. i tepl. tiaga 2 no.11:10-11 N '58.
(MIRA 11:12)

1.Depo Irkutsk II Vostochno-Sibirskoy dorogi.
(Electric locomotives--Cold weather operation)

VINOKUR, S.I.; MOGILEVICH, A.V.; SVOYKIN, S.V.; BURMISTROV, D.V.; KOSAREVA, Z.D.; BABUSHKIN, V.I., red.; POGODIN, Yu., red.; TELEGINA, T., tekhn.red.

[Handbook for tax workers] Spravochnik nalogovogo rabotnika. Moskva, Gosfinizdat, 1958. 367 p. (MIRA 12:6)
(Taxation)

SOV/126- -7-5-9/25

AUTHORS: Vlasov, V.V., Subbotin, Yu.S. and ~~Babushkin, V.I.~~

TITLE: Investigations Relating to Defectoscopy of Railroad Rails in Moving Magnetic Fields. 14. On Applying a Magnetic Memory in the Defect Checking of Rails (Issledovaniya po defektoskopii zheleznodorozhnykh rel'sov v dvizhushchikhsya magnitnykh polyakh. 14. O primenenii magnitnoy pamyati pri kontrole rel'sov)

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 7, Nr 5, pp 689-693 (USSR)

ABSTRACT: This is one of a long series of articles on the subject of detection of rail failures by means of magnetic fields moving at speeds which are acceptable in normal railroad operation. In the case of a speed of 45 km/hr, the rail test truck travels a distance of 12.6 m in one sec; and in the case of travelling at a speed of 90 km/hr it traverses the same distance in half a second. In the given cases the duration of the signals produced by transverse cracks in the railheads are 4 and 2 msec respectively. During that time it is necessary to record not only the presence of an electromagnetic disturbance above the defective parts of the rail but it is also necessary to determine its character, i.e. the

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Investigations Relating to Defectoscopy of Railroad Rails in Moving Magnetic Fields. 14. On Applying a Magnetic Memory in the Defect Checking of Rails

shape of the e.m.f. induced in the search equipment of the defectoscope. At present such defectoscope equipped vehicles are fitted with an optical method of recording signals from the defects onto a normal negative cinefilm. The authors propose to substitute this by recording on a magnetic tape. The block schematics of the recording circuit are shown in Fig 1. A single 6.35 mm wide tape is used for recording the signals induced by both rails of the track. The kilometre markings are produced by changing the amplitudes of the signals by means of plates placed onto the sleepers. A schematic diagram of the signal reproduction mechanism is shown in Fig 5. Experiments have shown that the signals produced by defects of rails and also by other metallic components of the truck can be satisfactorily detected from the magnetic tape recordings. Any part of the recording can be analysed in detail by keeping the tape still relative to the rotating disc carrying the reproduction heads. If the tape moves at a certain speed relative to these

Investigations Relating to Defectoscopy of Railroad Rails in Moving Magnetic Fields. 14. On Applying a Magnetic Memory in the Defect Checking of Rails

rotating reproduction heads, the signals recorded can be read off. The tape recordings allow easy amplification of the e.m.f. curves in amplitude as well as in time. The first is achieved by controlling the amplification, the second by increasing the scanning speed. Consequently, the magnetic tape is a considerably more flexible tool for detecting rail defects than cinefilm recordings.

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There are 5 figures and 7 references, 5 of which are Soviet, 1 English and 1 International.

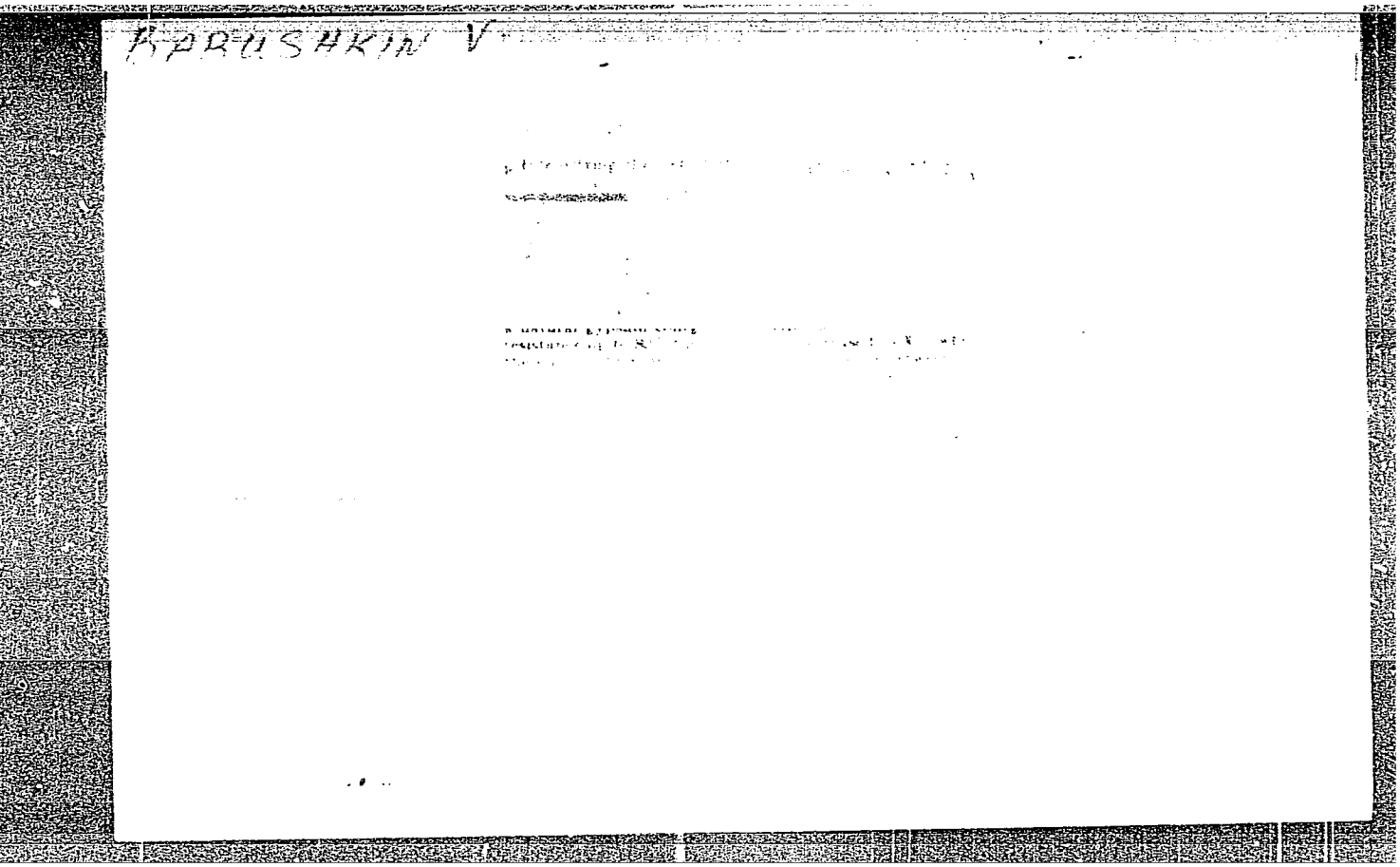
ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Metal Physics, Ac.Sc. USSR)

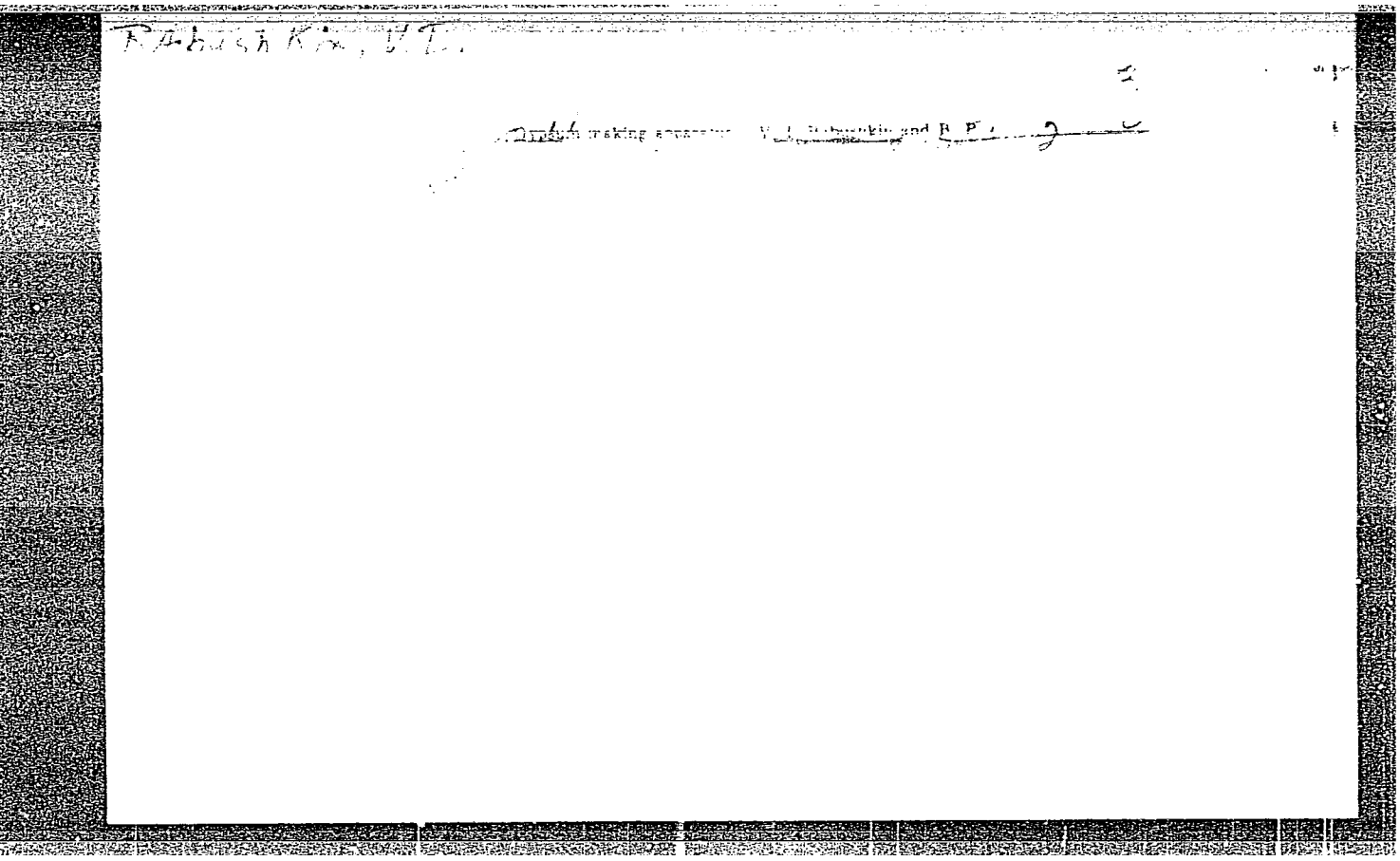
SUBMITTED: August 12, 1958

BABUSHKIN, Vladimir Ivanovich; MCHEDLOV-PETROSYAN, Otar Petrovich; KOMENDANT, K.P., red.; YEREMINA, I.A., tekhn. red.

[Silicate water-resistant products] Silikatnye vodostoikie izdeliia. Kiev, Gosstroiizdat, USSR, 1962. 98 p.
(MIRA 16:10)

(Silicates) (Building materials)





SOV/80-59-1-7/44

AUTHORS: Babushkin, V.I. and Mchedlov-Petrosyan, O.P.

TITLE: Thermodynamical Study of Solid Phase Reactions in the Calcium Oxide - Alumina System (Termodinamicheskoye izucheniye tverdofazovykh reaktsiy v sisteme okis' kal'tsiya - glinozem)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, pp 46-50 (USSR)

ABSTRACT: The authors undertook an investigation in order to establish thermodynamical conditions for possible reactions in the system containing calcium oxide and alumina and to study the kinetics of calcium aluminate formation in this system. Thermal capacities for various systems were either taken from the Kelley report [Ref. 19] or computed from entropies [Ref. 20]. On the basis of thermodynamical calculations the authors give the quantitative grounds for the succession of the formation of compounds in solid phase reactions of the calcium part of the CaO - Al_2O_3 system, and cite equations for the calculation of free energies in 10 possible reactions for the CaO - Al_2O_3 system. In conclusion they propose a scheme of aluminates formation and point out some mistakes in the theory of Portland-cement calcination.

SOV/[illegible]-1-7/44

Thermodynamical Study of Solid Phase Reactions in the Calcium Oxide - Alumina System

There are 2 tables, 1 graph and 24 references, 11 of which are Soviet, 5 German, 3 American, 1 Japanese and 1 Italian.

SUBMITTED: May 22, 1957

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5 (1, 2)

AUTHORS: Mchedlov—Petrosyan, O. P., Babushkin, V. I.

SOV/20-128-2-35/59

TITLE: On the Utilization of Crystallochemical Data for the Thermodynamic Analysis of Processes Involved in the Hydrothermal Synthesis of Calcium Hydrosilicates

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 2, pp 348-351 (USSR)

ABSTRACT: It is important in the investigation of chemical processes proceeding in the systems $Ca(OH)_2$-SiO_2-H_2O and β-C_2S-H_2O, C_3S-H_2O to take into account, besides other methods, also the thermodynamic probability of the formation of the one or other compound. Direct determination of the heat of formation and other thermal constants is very difficult since the gels produced have a fine-crystalline structure (Refs 1-4). Indirect solution of this problem became possible as soon as N. V. Belov and Kh. S. Mamedov (Ref 5) had determined the structures of several calcium hydrosilicates. Accordingly, the lacking thermodynamic characteristics were determined in the present paper. The calculations were based upon the structural peculiarities and the nature of the interatomic bonds of the

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hydrosilicates. 9 minerals were investigated: hillebrandite, afwillite, foschagite, xonotlite, riversidite, tobermorite, plombierite, gyrolite, and okenite. All are mostly hydrated wollastonites. The unknown heat of formation of these hydrosilicates was calculated from the average bond energies (Ref 6) of Si-O, Ca-O, Ca-O-H, O-H with special regard to the proportion of crystal water for those compounds in which it was undoubtedly present. The authors estimated the average bond energies under consideration of the structure of the minerals mentioned (Ref 5) and on the basis of reliable initial data for β-wollastonite and portlandite (Ref 10). Table 1 gives the data for the calculation of the standard entropies of the hydrosilicates. The values of free energy were calculated according to the formula $\Delta Z = \Delta H - T\Delta S$. Many necessary data were taken from publications (Refs 9-11). The results are given in table 2. The formation reactions (totally 81 reactions) of the hydrosilicates given in table 2 within the temperature range 25-100° were also investigated on this basis. The equations $\Delta Z = f(T)$ were derived for all reactions

investigated on the strength of the utilized data. Furthermore, a thermodynamic analysis was made concerning the probability of their occurrence under standard and hydrothermal conditions. All reactions investigated in the system $Ca(OH)_2$-SiO_2-H_2O appeared thermodynamically possible, and the products formed in the temperature range investigated were stable. Individual minerals are enumerated which are most probable for various temperature ranges. In the system C_3S-H_2O all reactions investigated are also possible within the entire temperature range (Fig 2 A). In the system β-C_2S-H_2O (Fig 2 B) the reactions Nr 1-4, 6-8 are possible in principle at normal temperature (25°), whereas Nrs 5 and 9 are impossible. Definite conclusions from the results obtained may be only drawn if the basic properties of individual calcium hydrosilicates (water resistence, shrinking capacity, strength characteristics, etc) are known. There are 2 figures, 2 tables, and 23 references, 12 of which are Soviet.

BABUSHKIN, V. I. Cand [redacted] Tech Sci -- "Thermodynamic and technological principles of production of water-resistant autoclave silicate materials." Khar'kov, 1960 (Min of Railways USSR. Khar'kov Inst of Engineers of Railroad Transport im S. M. Kirov). (KL, 1-61, 191)

S/063/60/005/002/008/008/XX
A051/A029

AUTHORS: Mchedlov-Petrosyan, O. P., Corresponding Member of the UkrSSR, Academy of Construction and Architecture, Babushkin, V. I.

TITLE: Chemical Thermodynamics in Solving Technological Problems of Building Materials

PERIODICAL: Zhurnal vsesoyuznogo Khimicheskogo Obshchestva im. D. I. Mendeleyeva, 1960, Vol. 5, No. 2, pp. 126-133

TEXT: A thermodynamic study of chemical processes on comparatively few parameters shows the possibility of the processes and their direction (Ref. 1-4). The further development of silicate thermodynamics needs: a) calorimetric methods for determining thermal constants (Ref. 5-7), b) the work on quantitative thermography (Ref. 8,9), c) computing methods of entropy and thermal capacity of crystal compounds (Ref. 1-3, 11), d) work on the thermodynamics of slag and glass (Ref. 11-13). According to the theory of chemical equilibrium, any spontaneous isothermal process follows the direction of the decrease in free energy, i. e., the isobar-isothermal potential (ΔZ). Based on the value of $\Delta Z = f(T)$, it can be ascertained: whether the supposed interaction takes place between

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reacting substances; which of the several probable reactions is most likely to take place; to what extent can the reaction take place, depending on the energy conditions. The chemical reactions of silicate technology are divided into two large groups: 1) pyrosilicate reactions, to which all reactions in the solid phase, also in silicate melts and slag belong and 2) the reactions of solidification of mineral binding materials (the processes of dilution, chemical reaction, crystallization from aqueous solutions of silicates, etc.) The principle described by G. Tammann (Ref. 19) is used as the basis for the thermodynamic approach to the study of the solid-phase reactions. The authors point out that the systematic application of the thermodynamic principles was suggested by them previously for studying reactions in the solid phase (Ref. 4, 20-25). In silicate technology the following reactions are included amongst the solid-phase type: 1) reactions between solid oxides SiO_2, CaO, Al_2O_3, MgO, BaO, etc., 2) polymorphic transformations of silicates, 3) the reactions of formation of simple substances and oxides. In studying the thermodynamics of reactions in the system CaO - SiO_2, the authors give a quantitative explanation by calculations of the primary formation of calcium orthosilicate, regardless of the compositon of the

Chemical Thermodynamics in Solving Technological Problems of Building Materials

initial mixture (Fig. 1,a) [Note: both in the test and in Fig. 1 the accepted symbols are used, i. e., A-Al_2O_3, C-CaO, M-MgO, S-SiO_2, H-H_2O.] The calculations led to the following conclusions: 1) In synthesizing mullite from oxides at a ratio of A:S = 1:1 the primary product is mullite ($\Delta Z_{1,200^\circ K}$ = -66,810 cal/mole); 2) In the reactions of kaolinite transformation in heating, the calculations were made from metakaolin ($\Delta H_{298.16^\circ K}$ = -767,500 cal/mole; $\Delta Z_{298.16^\circ K}$ = - 719,410 cal/mole). Hereby it became apparent that within the entire temperature range the most probable result was mullite ($\Delta Z_{1,000^\circ K}$ = - 104,740 cal/mole and $\Delta Z_{1,600^\circ K}$ = - 96,240 cal/mole). 3) The possibility is proven of sillimanite and minerals of its group being transformed into mullite ($\Delta Z^{AS}_{1\ 800^\circ K}$ = -9,470 cal/mole), and when adding Al_2O_3 these reactions are even preferred ($\Delta Z^{AS}_{2\ 800^\circ K}$ = - 61,640 cal/mole). 4) Calculations were also made on the possible decomposition of metakaolin to oxides $AS_2 \rightarrow \gamma$ - A + $2S_{st}$ which revealed that metakaolin is several times less preferable ($\Delta Z_{1,200^\circ K}$ = - 34,220 cal/mole) than the reaction of sillimanite formation ($\Delta Z_{1,200^\circ K}$ = - 90,370 cal/mole), and even mullite ($\Delta Z_{1,200^\circ K}$ = - 103,260 cal/mole) from the same metakaolin. 5) Special interest was shown from the geochemical standpoint in the reaction of kyanite transforming to sillimanite. Calculations showed that this transformation is possible and at 1,800°K,

Chemical Thermodynamics in Solving Technological Problems of Building Materials

ΔZ = - 2,410 cal/mole (ΔH = 3,000 cal/mole). The study of certain reactions in the BaO - SiO_2 system was later completed and made more accurate by data of new thermodynamic findings (Ref. 53, 54). The calculations made previously on the BaO - Al_2O_3 system were later more accurate (Ref. 29, 62). Of four possible reactions the most preferable were: in the temperature range from 298 to 700°K (when the reaction is actually not yet taking place), decomposition to carbonates ($\Delta Z_{600°K}$ = - 4,400 cal/mole); in the range of 700 to 1,200°K - reaction with the formation of MgO and $CaCO_3$ ($\Delta Z_{1,200°K}$ = - 31,310 cal/mole) and above 1,200°K, decomposition to oxides $\Delta Z_{1,400°K}$ = 49,500 cal/mole, which is in complete agreement with existing experimental findings (Ref. 64). The work of Tamman (Ref. 76) was the first attempt of applying thermodynamics to melted slag from the standpoint of their ionic structure. Based on static thermodynamics of real ionic solutions (Ref. 81) formulae were derived which enable one to compute the equilibrium content of slag in metal in a given composition of elements, such as sulfur, oxygen, manganese and phosphorus. The application of thermodynamics can be converted to numerical values for systems, where the state equation is given. For real systems, where the theory of state has not yet been derived (in this case

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the theory of solutions), great importance is attached to methods based on empirical data, namely, the "method of activity". The coefficients of activity of saturated solutions of dihydrate and semihydrate gypsum at 298°K are determined according to the formula:

$$-\lg \gamma_{\pm} = \frac{i_+ \cdot i_- \cdot A\sqrt{\mu}}{1_+ a_o B\sqrt{\mu}}$$

where i_+ and i_- are the ion charges; μ the ionic power of the solution; a_o the size of the ions; A and B are constants. The total thermal effect of the hardening process of the gypsum is thus equal to 2,860 + 1,750 = + 4,160 cal/mole, which corresponds well with experimental data on heat liberation in the hardening of gypsum (Ref. 65). For the thermodynamic analysis of the hydration reactions in the systems β- C_2S - H_2O; C_3S - H_2O; $Ca(OH)_2$ - SiO_2 - H_2O, an approximate method of calculation was used for the unknown standard heats of formation of the calcium hydrosilicates, according to the average values of the bond energies. In the system β- C_2S - H_2O the primary product, up to 65°C, is hillebrandite, and up to 160-170°C afwillite (Fig. 2). In the system C_3S - H_2O the primary product

Chemical Thermodynamics in Solving Technological Problems of Building Materials

is hillebrandite (Fig. 3). In the system $Ca(OH)_2$ - SiO_2 - H_2O reactions for 7 compositions were investigated. For the composition C:S = 2:1 and more alkaline compositions 3:1, 4:1, etc., the primary product is hillebrandite. For compositions C:S = 3:2, 4:3 (and intermediary ones between these) the primary product is foshagite - $C_4S_3H_{1,5}$ - within the entire temperature range. For the composition 6:6 (1:1) the primary products are tobermorites, viz., tobermorite $C_5S_6H_{10,5}$ up to 60°C - 14Å, and up to 170°C - 11Å, tobermorite $C_5S_6H_{5,5}$. Over 170°C for this composition the most preferable is xonotlite - C_6S_6H. For the composition 5:6 the primary products and most preferable ones up to 320°C are the tobermorites at 60°C-14Å and from 60°C to 320°C 11Å, and at higher temperatures xonotlite. For compositions of C:S = 2:3, 1:2 and more acidic ones (1:3, 1:4, 1:5, etc.), the primary products, within the entire range of temperatures, are gyrolites $C_2S_3H_{2,5}$ (Fig. 4). There are 4 graphs and 95 references: 58 Soviet, 32 English, 4 German, 1 French.

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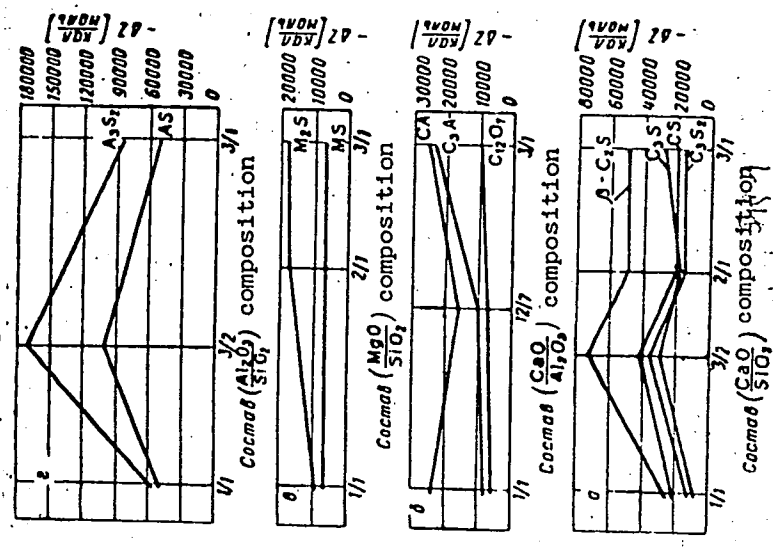
S/063/60/005/002/008/008/XX
A051/A029

Chemical Thermodynamics in Solving Technological Problems of Building Materials

Figure 1:

Graph of the dependence of - ΔZ on the composition at certain temperatures (^{o}K) in the systems: a - $CaO - SiO_2$ at T = 1,400(^{o}K); б (b) - $CaO - Al_2O_3$ at T = 1,200 ^{o}K; в (v) - $MgO - SiO_2$ at T = 1,600 ^{o}K; г (g) - $Al_2O_3 - SiO_2$ at T = 1,600 ^{o}K.



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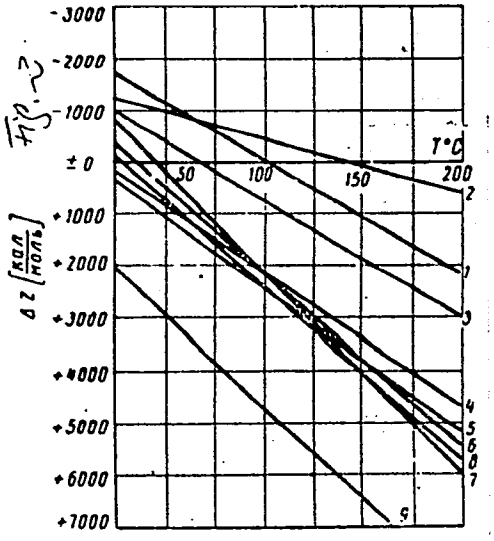
Chemical Thermodynamics in Solving Technological Problems of Building Materials

Figure 2:

Graph of $\Delta Z = f(T)$ for the reaction in the system $\beta = C_2S - H_2O$, numbers of the reactions correspond to the formation:
1 - $C_2SH_{1,17}$; 2 - $C_3S_2H_3$; 3 - $C_4S_3H_{1,5}$; 4 - C_6S_6H; 5 - $C_5S_6H_3$; 6 - $C_5S_6H_5$,5; 7 - $C_5S_6H_{10,5}$; 8 - $C_2S_3H_{2,5}$; 9 - CS_2H_2.

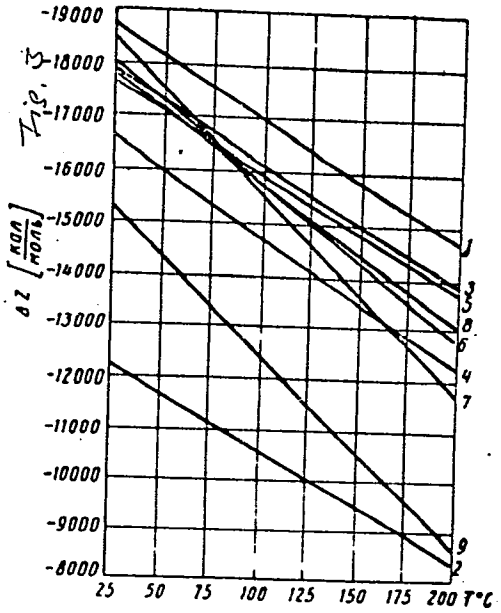


Card 8/10

Chemical Thermodynamics in Solving Technological Problems of Building Materials

Figure 3:

Graph of $\Delta Z = f(T)$ for reactions in the system $C_3S - H_2O$ (the reactions aremarked in the same way as in Fig. 2)



Card 9/10

Chemical Thermodynamics in Solving Technological Problems of Building Materials

Figure 4:

Graph of the dependence on the composition at 175°C for reactions in the system $Ca(OH)_2$ - SiO_2 - H_2O (the reactions are marked as in Fig. 2 and 3)

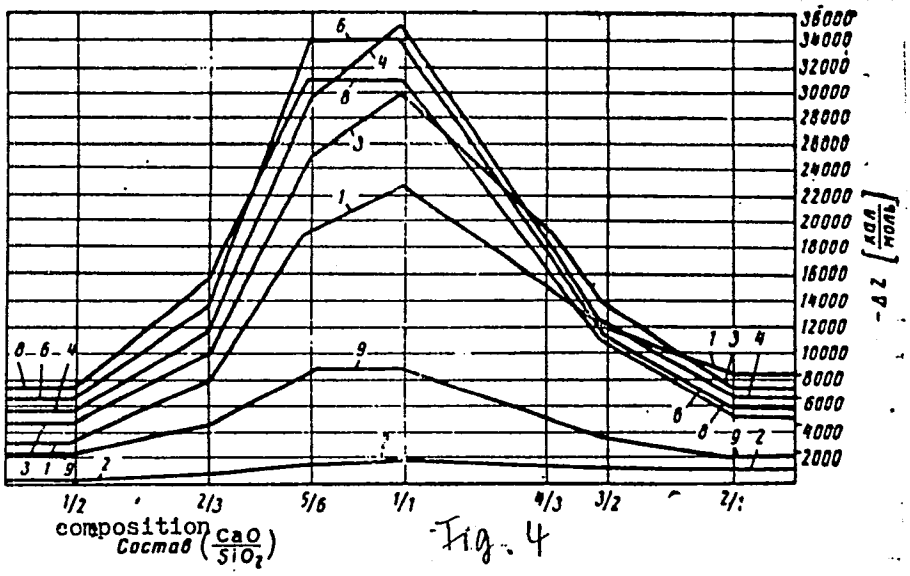


Fig. 4

Card 10/10

MCHEDLOV-PETROSYAN, O.P.; BABUSHKIN, V.I., kand.tekhn.nauk

Thermochemistry and thermodynamics of unhydrated and hydrated cement minerals. Zhur. VKhO 6 no.6:677-680 '61. (MIRA 14:12)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury (for Mchedlov-Petrosyan).
(Cement) (Hydration) (Thermochemistry)

30173
S/070/61/006/006/005/008
E132/E135

15 2530

AUTHORS: Mchedlov-Petrosyan, O.P., and Babushkin, V.I.

TITLE: On the role of structural analogy and stoichiometry in the thermodynamic study of silicates

PERIODICAL: Kristallografiya, v 6, no.6, 1961, 933-936

TEXT: The authors have enunciated a principle which consists, in essence, of the assumption of the equivalence of the contributions to the energy by one or by several bonds, and also by separate structural groups (oxides, ions, saturated molecules, etc.) in compounds identical in structure and belonging to the same system. This principle enables one to overcome to some extent the shortage of thermochemical data on silicates. It has been tried out on calcium silicates and hydro-silicates, aluminates, etc. For hillebrandite and foshagite the method proved completely satisfactory and slightly less so for xonotlite. For these calculations the bond energies of Ca-O bonds derived from beta- wollastonite, Ca-OH from portlandite and Si-O from beta-quartz. A discussion is given of the possibilities of transitions from one material to another which

Card 1/2

BABUSHKIN, Vladimir Ivanovich; MCHEDLOV-PETROSYAN, Otar Petrovich; KOME DANT, K.P., red.; YEREMINA, I.A., tekhn. red.

[Silicate water-resistant elements]Silikatnye vodostoikie izdeliia. Kiev, Gosstroiizdat, USSR, 1962. 98 p. (MIRA 16:2)

(Sand--Lime products)

BABUSHKIN, Vladimir Ivanovich; MATVEYEV, German Mikhaylovich; MCHEDLOV-PETROSYAN, Otar Petrovich, doktor tekhn. nauk, prof.; RABINOVICH, I.A., red. izd-va; RODIONOVA, V.M., tekhn. red.

[Thermodynamics of silicates]Termodinamika silikatov. Pod obshchei red. O.P.Mchedlova-Petrosiana. Moskva, Gosstroiizdat, 1962. 265 p. (MIRA 16:3)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury Ukr.SSSR (for Mchedlov-Petrosyan).
(Silicates--Thermodynamic properties)

OL'KHOVOY, L.G.; SHEVCHENKO, L.P.; BABUSHKIN, V.I.; BYNAKOV, A.G.; MCHEDLOV-PETROSYAN, O.P.

Water resistant non-autoclaved materials of hydraulic lime and silica. Stroi.mat. 10 no.8:16-18 Ag '64. (MIRA 17:12)

BABUSHKIN, V.I.; LOZANSKIY, V.R.; PAPKOVA, L.P.

Physicochemical method of increasing the strength of concrete and reinforced concrete pipelines. Stroi. truboprov. 10 no.1:12-15 Ja '65. (MIRA 18:4)

1. VodokanalNIIproyekt, Khar'kov.

MCHEDLOV-PETROSYAN, O.P.; BABUSHKIN, V.I.

Relation between thermodynamics and kinetics of certain solid-phase reactions. Dokl. AN SSSR 163 no.2:406-409 Jl '65. (MIRA 18:7)

1. Submitted December 10, 1964.

BABUSHKIN, Vladimir Ivanovich; MATVEYEV, German Mikhaylovich; MCHEDLOV-PETROSYAN, O.P., doktor tekhn. nauk, prof., red.

[Thermodynamics of silicates] Termodinamika silikatov. Moskva, Stroiizdat, 1965. 351 p. (MIRA 18:12)

BABUSHKIN, V. I., IVANOV, P. N., MALKIN, V. B., MANSUROV, A. R., USACHEV, V. V. and KOMENDANTOV, G. L.

"The Effect of Accelerations Upon the Human Organism" (The Eighth All-union Congress of physiologists, Biochemists, and Pharmacologists), pp. 313-314, Moskva, 1955.

BABUSHKIN, V.I., podpolkovnik meditsinskoy sluzhby; MALKIN, V.B., kandidat meditsinskikh nauk; USACHEV, V.V., podpolkovnik meditsinskoy sluzhby

Some data on the body's adaptation to the effect of radial acceleration. Voen.-med. zhur. no.4:10-19 Ap '56. (MLRA 9:9)
(AVIATION MEDICINE)

ZVEREV, A.G.; POPOV, V.F.; FADEYEV, I.I.; BABUSHKIN, V.I.; BERLOVICH, I.L.; BOCHKO, A.M.; BURLACHENKO, S.Ye.; GARBUZOV, V.F.; DMITRICHEV, P.Ya.; DUNDUKOV, G.F.; ZLOBIN, I.D.; KOROVUSHKIN, A.K.; KORSHUNOV, A.I.; KUZIN, M.G.; KUTUZOV, G.A.; LYSKOVICH, A.A.; MASHTAKOV, A.M.; MIKHEYEV, V.Ye.; NIKEL'BERG, P.M.; POSKONOV, A.A.; ROMANOV, G.V.; SOSIN, I.F.; SOSNOVSKIY, V.V.; POVOLOTSKIY, M.M.; URYUPIN, F.A.; KHARIONOVSKIY, A.I.; CHULKOV, N.S.; SHESHERO, N.A.; SHITOV, A.P.; SHUVALOV, A.M.; YANBUKHTIN, K.Kh.

Arsenii Mikhailovich Safronov; obituary. Fin.SSSR 18 no.11:95 N '57. (MIRA 10:12)

(Safronov, Arsenii Mikhailovich, 1903-1957)

USSR / Human and Animal Physiology (Normal and Patholo- T
gical). Neuromuscular Physiology

Abs Jour: Ref Zhur-Biologiya, No 21, 1958, 97825

Author : Babushkin, V. I., Isakov, P. K., Malkin, V. B., Usachev, V. V.

Inst : Not given

Title : Study of Bioelectric Activity of Skeletal Musculature in Man by the Action of Radial Accelerations

Orig Pub: Fiziol. zh. SSSR, 1958, 44, No o, 10-13

Abstract: Those tested (10 persons 20 to 30 years old) were placed in centrifugal arm chairs. The time of acceleration (A) action of maximum intensity was 20 seconds. In all those tested, an increase in bioelectric activity of the skeletal musculature

Card 1/2

USSR / Human and Animal Physiology (Normal and Patholo- T
gical). Neuromuscular Physiology

Abs Jour: Ref Zhur-Biologiya, No 21, 1958, 97825

was noted at the time of action. A clear increase in the amplitude (Amp) of biological current of the muscles of lower extremities and of the abdomen appeared usually at the time of A reaching 2 to 25 g. An appearance of activation of the currents of action of intercostal muscles was noted usually at 3 g. A regular increase in Amp at rise of intensity of A was noted. The greatest increase in Amp was observed at rise of intensity from 2 to 405 g. At further rise of intensity of A, in the majority of cases an increase in Amp was no longer noted and in many experiments A decreased. In experiments with application of anti-g suit, creation of pressure in the chambers of the suit led to sharp decrease of Amp of the biological current of abdominal and thigh muscles and sometimes almost to total disappearance.

Card 2/2

BARUSHKIN, V.I.; ISAKOV, P.K.; MALKIN, V.B.; USACHEV, V.V. (Moskva)

Respiration and gas exchange in man subjected to radial acceleration [with summary in English]. Fiziol.zhur. 44 no.4:342-347 Ap '58. (MIRA 11:4)

(RESPIRATION,
eff. of rotation of man in centrifuge (Rus))
(CENTRIFUGATION,
eff. of rotation of man in centrifuge on resp. & exchange of gases (Rus))

BABUSHKIN, V.I., kand.med.nauk, podpolkovnik meditsinskoy sluzhby

Effect on man of prolonged radial acceleration. Voen.-med.zhur. no.8: 50-54 Ag '59. (MIRA 12:12)
(ACCELERATION, effects)

17.2250
27.2500

32556
S/177/61/000/006/001/003
D298/D305

AUTHORS: Babushkin, V.I., Lieutenant-Colonel, Medical Corps, Candidate of Medical Sciences, Isakov, P.K., Colonel, Medical Corps, Candidate of Biological Sciences, Malkin, V.B., Candidate of Medical Sciences, and Usachev, V.V., Lieutenant-Colonel, Medical Corps, Candidate of Medical Sciences

TITLE: Some changes in higher nervous activity under acceleration

PERIODICAL: Voyenno-meditsinskiy zhurnal, no. 6, 1961, 54-58

TEXT: Because of the effects of acceleration in flight on the brain the authors studied the functional state of the higher sections of the central nervous system under radial acceleration. Radial acceleration was effected in a centrifuge with a seat equipped for recording motor reflexes and studying the structure of certain special volitional movements. The first series of tests studied the state of conditioned motor reflexes to light and sound stimuli under varying degrees of acceleration.

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Some changes in higher ...

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D298/D305

The results showed that under relatively low acceleration of 3-4 g a slight increase in the latent period of the motor conditioned response was noted. As the experiment was repeated, the difference in the latent period became less marked. At greater accelerations of 5-6 g the picture was different. While the latent period of response to a sound stimulus increased slightly, there was a marked increase in the latent period of response to light stimulus. To check the pilot's work capacity under acceleration a second series of tests studied the effects of acceleration on motor actions simulating working movements that a pilot has normally to make. It was found that the changes in the structure of the motor action varied with the degree of acceleration and the plane in which the activating arm moved. The most marked increase in movement time was noted when the arm was shifted in a direction opposite to the action of the centrifugal force. When the arm was moved in a plane perpendicular to the action of centrifugal forces, the movement time increased only slightly. When an anti-gravity suit was worn under only slight acceleration, the latent period of conditioned motor reflexes

to light and sound stimuli increased slightly. With greater acceleration, the latent period changed much less than when no anti-gravity suit was worn. The use of an anti-gravity suit also led to less marked changes in the structure of working movements. Various researchers have noted that increasing acceleration leads to progressive drop in the blood pressure of the cerebral vessels. The use of an anti-gravity suit, however, helps maintain blood circulation at a high level. This is corroborated by the authors' previous research (1954-56): persons wearing an anti-gravity suit and subjected to acceleration had a higher blood pressure in the brachial artery than persons with no anti-gravity suit. The authors view this as experimental proof that the increased resistance to acceleration afforded by an anti-gravity suit derives mainly from compensation of the shifts in the blood circulation system. The authors disagree with certain Soviet researchers (G.L. Komendantov, 1952; D.M. Savin, 1953), who attribute the profound disturbances in the activity of the central nervous system caused by acceleration to afferent pulsation from the interoreceptors of the viscera. The authors assert that in the present case afferent pulsation from these receptors has no

Some changes in higher...

definite significance; the disturbances are obviously caused by dystrophy of cerebral blood circulation as a result of the drop in blood pressure in the cerebral vessels. The visual disturbances under acceleration are probably caused by dystrophy of the peripheral section of the visual analyzer, i.e., the retina. On the basis of their observations the authors conclude that sound signaling is preferable to visual signaling in flying and could be used as a basis for a more rational distribution of control levers and switches in a plane's cabin. There are 2 tables and 2 figures.

SUBMITTED: November, 1960

Card 4/4

ACCESSION NR: AT4042649 S/0000/63/000/000/0044/0047

AUTHOR: Babushkin, V. I.; Usachev, V. V.

TITLE: The efficiency of man under the influence of radial acceleration and positive pressure respiration of oxygen

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 44-47

TOPIC TAGS: acceleration, centrifuge, radial acceleration, positive pressure respiration, oxygen respiration, high altitude flying, pressure suit, counter-pressure, antigravity suit

ABSTRACT: Studies on the heart rate and respiration, as well as the ability to perform different movements which simulated the working operations of a flier in an emergency situation, were carried out in a centrifuge and confirmed in flight. These investigations showed that a pressure suit increases the resistance of a man to an acceleration of 0.5-1 G, decreasing the heart rate without interfering with movement as long as there is no pressure in the elastic parts of the suit. Thus, under the influence of acceleration and oxygen respiration at normal pressure, the heart rate increased by 20-60 beats/minute, while with oxygen respiration under

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ACCESSION NR: AT4042649

positive pressure (350 mm of water) it increased only by 16-42 beats/minute. The use of an antigravity suit under these conditions caused an even smaller increase in heart rate (8-30/min). Respiration under pressure without acceleration had no significant effect on the length of expiration and inspiration. Analysis of data obtained at an acceleration of 4 G with respiration of oxygen under a pressure of 400-1000 mm of water showed that the physiological effects of a pressure suit (high-altitude suit) are essentially the same as those of an antigravity suit. An investigation of movement under conditions of acceleration and respiration under excess pressure, using a pressure suit, showed significant impairment of movement, expressed as an increase in the time required to carry out the prescribed hand & foot movements. It should also be mentioned that during positive pressure respiration with the application of counterpressure under conditions of prolonged acceleration, less pronounced shifts in respiration and cardiovascular function were observed than during respiration with oxygen at normal pressure. This could be due to the increase in tone of the skeletal musculature, particularly the respiratory and abdominal muscles.

ASSOCIATION: none

SUBMITTED: 27Sep63 ENCL: 00 SUB CODE: LS, PH

Card 2/2 NO REF SOV: 000 OTHER: 000

ACCESSION NR: AT4042650 S/0000/63/000/000/0047/0051

AUTHOR: Babushkin, V. I.; Isakov, P. K.; Malkin, V. B.; Usachev, V. V.

TITLE: Physiological reactions to radial accelerations

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 47-51

TOPIC TAGS: acceleration effect, radial acceleration, cardiovascular system, respiratory system, pilot testing, work capacity, compensating reaction

ABSTRACT: Experiments to determine the effects of acceleration on various physiological functions and the work capacity of pilots were performed on centrifuges and in flights. Particular attention was paid to the effects of acceleration on the cardiovascular and respiratory systems. Examination of data indicated that persons able to withstand accelerations of 6 to 7 g reacted to acceleration stress by an increase in arterial pressure, the heartbeat rate, and the respiration rate. These indices were less well defined in persons who could not withstand acceleration well. Analysis of experimental data has shown that an increase in pulmonary

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ACCESSION NR: AT4042650

ventilation accompanies acceleration stress. The pulmonary ventilation of pilots subjected to an acceleration stress of 5 g increases more than two fold. This effect can be reduced considerably by the use of high-altitude pressure suits. When pilots are subjected to accelerations of between 5 and 6 g, oxygen consumption almost doubles and the production of CO_2 by the body increases significantly. Results of experiments on gas exchange have indicated that during the first five minutes after acceleration has taken effect, the consumption of oxygen remains increased while the respiration coefficient remains close to 1. This indicates that acceleration causes a significant increase in the intensity of the metabolic processes. The use of a high-altitude pressure suit reduces the consumption of oxygen and of energy requirements. The development of compensating reactions during acceleration, such as the increase of muscle tone, the increase of the functional activity of the cardiovascular system, and the increase in respiration, brings about an increase in energy requirements. The use of a high-altitude pressure suit has the effect of relieving the organism of part of the "load," thereby increasing the physiological capabilities of the pilot.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AT4042650

SUBMITTED: 27Sep63 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000

Card 3/3

BABUSHKIN, V.I.; MCHEDLOV-PETROSYAN, O.P., prof.

Corrosion of concrete and reinforced concrete and its control. Zhur.VKHO 10 no.5:539-544 '65.

(MIRA 18:11)

BABUSHKIN, V.N.; BORISENKO, A.I.

Unit for studying diffusion in solids. Prib. i tekh.eksp. 10 no.5:158-160 S-O '65. (MIRA 19:1)

1. Institut khimii silikatov AN SSSR, Leningrad. Submitted July 25, 1964.

ACC NR: AT7003992 SOURCE CODE: UR/0000/66/000/000/0043/0047

AUTHOR: Stepanov, V. G.; Babushkin, V. S.; Kravchenko, G. I.

ORG: none

TITLE: Electrodynamic generator with electron-resonance charger

SOURCE: Mezhvuzovskaya konferentsiya po elektronnym uskoritelyam. 5th, Tomsk, 1964. Elektronnyye uskoriteli (Electron accelerators); trudy konferentsii. Moscow, Atomizdat, 1966, 43-47

TOPIC TAGS: electrodynamic generator, electron accelerator

ABSTRACT: The palletron generator suggested by A. M. Skellett (J. Appl. Phys., 19, 187, 1948) permits obtaining much heavier currents than those available in modern electrostatic generators; hence, a modified palletron, in which a toroidal cathode is charged to a high positive potential (see figure) is theoretically considered. A new method is suggested for calculating the potential field at the electrodes connected to a resistor-capacitor divider. A numerical estimate shows

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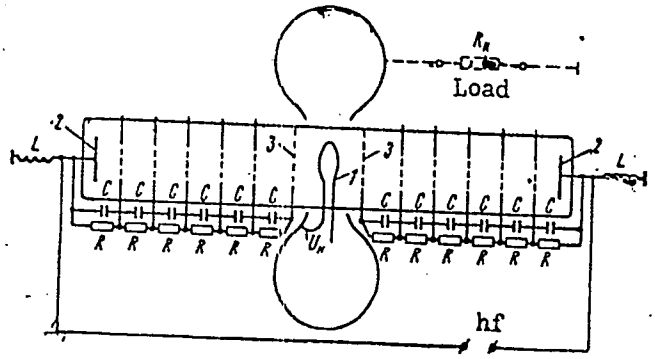

A modified palletron: 1 - emitter, 2 - collectors, 3 - accelerating electrodes, U_H - heater voltage of the emitter

that a 1-Mv palletron would have a half-height of 0.94 m, an accelerating voltage of 10 kv (amplitude) at 75 kc, and a maximum electric field strength of 20 kv/cm. Orig. art. has: 1 figure and 8 formulas.

SUB CODE: 09 / SUBM DATE: 06Mar66 / ORIG REF: 001 / OTH REF: 001

Card 2/2

BABUSHKIN, V. S. and GORBACHEV, P. S.

"How We Fulfilled the Annual Plan for Absolute Increase of Wired Radio Speakers," Vest. Svyazi, No.9, p.20, 1953

I. O. of the Engineer of the Tartu Communications Office

Translation Trans. No.533, 6 Apr 56

BABUSHKIN, Viktor Sergeyevich

[Doctor E.P.Serebrennikova] Vrach E.P.Serebrennikova. Perm', Permskoe knizhnoe izd-vo, 1957. 46 p. (MIRA 13:4)
(SEREBRENNIKOVA, EVGENIIA PAVLOVNA, 1854-1897)

BABUSHKIN, V.V.

Equipment for measuring high temperatures of a gas stream at high pressures. Trudy inst.Kom.stand., mer i izm.prib. no.42: 76-85 '60. (MIRA 14:1)

(Pyrometers)

32780
S/137/61/000/012/006/149
A006/A101

26.2192

AUTHOR: Babushkin, V.V.

TITLE: Equipment for measuring high temperatures of a gas jet under high pressure

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 14, abstract 12B86 ("Tr. in-tov Kom-ta standartov, mer i izmerit. priborov pri Sov. Min. SSSR" 1960, no. 42 (102), 76 - 85)

TEXT: The author determined experimentally the temperature of gases in a closed volume under high pressure, the temperature of an open gas jet, and the surface temperature of a solid body separated from the radiation receiver by a luminuous gas layer. For all the cases the method of red-blue relation was selected. The method consists in measuring the temperature of the radiation receiver with two heads, one of which is sighted through the flame onto a wall or a standard lamp and the other more merely onto the flame. The angle between the heads should be the least possible. The method is based on the assumptions: the temperature field across the flame is considered to be homogeneous; chemiluminescence and reflection of the flame are absent; constant thermodynamical equilibri-

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32780
S/137/61/000/012/006/149
A006/A101

um is assumed. The results of measurements may be strongly affected by non-uniform turbulence of the flame and abrupt temperature changes in external layers. An equipment for measuring the temperature of gases in a closed volume under high pressure is described.

G. Glinkov

[Abstracter's note: Complete translation]

X

34405
S/081/62/000/002/047/107
B156/B101

24.5200

AUTHOR: Babushkin, V. V.

TITLE: Apparatus for measuring the temperature of high pressure high temperature flows of gas

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1962, 319, abstract 2I113 (Tr. in-tov Kom-ta standartov, mer i izmerit. priborov pri Sov. Min. SSSR, 1960, no. 42 (102), 76 - 85)

TEXT: A procedure is examined for the experimental determination of the temperature of gases at high pressures in enclosed spaces, the temperatures of flows of gas in the open, and the temperatures of the surfaces of solid bodies separated from radiation receivers by layers of luminescent gas. The measurement procedure and apparatus have been developed on the basis of a number of assumptions, the most important of which are as follows: the hypothesis that the temperature field is uniform across the section of a flame, the absence of flame chemiluminescence and reflection, and the constancy of thermodynamic equilibrium. The temperatures of luminescent gases at high pressure in enclosed spaces are measured by

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B156/B101

Apparatus for measuring...

means of color pyrometers, the temperatures being recorded by cathode-ray oscillograph. The light evolved from the gases passes through a transparent sealed window, and strikes a semi-transparent "cube-prism", which divides the light into two beams; these beams pass through suitable light filters and strike two photoelectric cells. The photoelectric currents which develop are amplified by a three-circuit d-c amplifier, and are recorded on photographic tape in the oscillograph. This apparatus can measure luminescent flame temperatures between 1800 and 3000°C. at transmission frequencies up to 6000 c/s. Variations in temperature in apparatus with accelerations up to 100 g can be recorded. The ЛО-5М (LO-5M) color pyrometer is used for measuring the temperatures of open flames; this instrument is fitted with an optical system for focussing it onto the flame. The LO-5M pyrometer can measure solid body or flame temperatures between 1500 and 3000°C. Example oscillograms are given. Further work on optical pyrometry must follow the lines of further improving the apparatus (raising the frequency characteristics, introducing the single-circuit recording of temperatures for color pyrometers, etc.); work must also be directed at studying the nature of evolution of light by flames, the relationship of optical properties to the degree of completeness of the reactions, and the effects of the final combustion of

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Apparatus for measuring... S/081/62/000/002/047/107
B156/B101

soot particles in the outer regions of flames on the overall (average through the bulk of the flame) temperature and the occurrence of intensity drops in spectra. [Abstracter's note: Complete translation.]

Card 3/3

39207

S/263/62/000/004/009/009
I004/1204

AUTHOR: Babushkin, V. V.

TITLE: A device for measurement of high temperatures of a gas stream under high pressure

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 32. Ismeritel'naya tekhnika, no. 4, 1962, 39–40, abstract 32.4.273. "Tr. in-tov Kom-ta standartov, mer i izmerit. priborov pri Sov. Min. SSSR", no. 42 (102), 76–85

TEXT: A description is given of a color measurement method of temperatures of gases contained in a closed vessel under high pressure, of the temperature of an open gas jet, and of the surface temperature of a solid body separated from the radiation receiver by a layer of luminous gas. The temperature of the surface of gray bodies located beyond the layer of the luminous gas is measured by the compensation method. In this method the radiation of the flame layer which enters the object lens of the pyrometer together with the radiation of the wall, is compensated by the radiation of a free region of this flame entering the object glass of a second pyrometer with the same sensitivity and connected differentially with the first one. The two signals, each of them corresponding to the difference of photoelectric currents, are recorded on a film. The color temperature of a closed luminous flame with a sufficiently intensive continuous spectrum (e.g. the flame of fuels burning with high temperature, several flames used in technology) is equal to its real temperature and the problem of its determination is reduced to establishment of the red-blue ratio of the flame intensity under

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A device for...

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conditions of thermal equilibrium. For measurement of temperatures of open industrial flames the relative absorption of the flame in the red and blue region of the spectrum should be determined in addition to the value of the red-blue ratio. The temperature of luminous gases in a closed vessel under high pressure is measured by means of a color pyrometer JI-1 (L-1) and the obtained results are recorded on the screen of a cathode-ray tube. The radiation of the hot gasses passes through a transparent window and reaches a semitranspa-rent cube-prism, in which the light flux is divided into two beam passing through corresponding filters and falling onto two photoelements. The photoelectric currents in the circuits of these photoelements are amplified by a 3-channel d.c. amplifier and recorded on a light-sensitive paper of a sextuple-beam cathode ray tube. The setup is checked by a tungsten band filament lamp, calibrated at BHIIIM (VNIIM) for the color temperature. The setup serves for temperature measurement of luminous flames within the 1800 to 3000°C range with a pass band frequency of 6000 cps. The temperature of the open flame section is measured by a color pyrometer JIO-5M (LO-5M), equipped with an automatic optical search system. The photocurrents are amplified by means of a 2-channel d.c. amplifier with a current output. Pyrometer LO-5M may serve for temperature measurement of a solid body or of a flame in the 1500 to 3000°C range. It seems to be necessary to develop a comparison source with a color temperature above 3000°C. There are 8 figures.

[Abstracter's note: Complete translation.]

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ACC NR: AT6022371 SOURCE CODE: UR/0000/66/000/000/0085/0094

AUTHOR: Babushkin, Ye. F.

ORG: none

TITLE: Investigation of information properties of multichannel systems intended for detecting weak signals in noise based on the theory of coincidence of continuous random functions

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya teorii informatsii. Doklady. Moscow, 1966, 85-94

TOPIC TAGS: signal detection, detection system

ABSTRACT: The false-alarm level is analyzed in multichannel systems having discrete accumulation based on the counting of output-signal spikes. Each characteristic of the system is designed for optimal operation at a fixed value of

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ACC NR: AT6022371

an a-priori unknown signal parameter, such as carrier frequency. By uniting the channel outputs, a best decision re signal presence is ensured. In a maximum-spike system, the signal is recognized as present whenever at least one of the spikes in n channels exceeds a preset level. Formulas for the number of false detections and failures to detect real signals are derived. The problem of signal detection in a multichannel system with correlated noise is considered in two variants: (1) Summing up the spikes in each channel and (2) Coincidence method, i.e., selection of the spikes which simultaneously exceed a preset level. The analysis shows that, with an increasing number of channels, the mean frequency of false detections, in both above methods, first increases and then, after a certain $n = n_0$, decreases. Curves of false-detection mean frequency vs. preset level, for n = 1 to 10, are shown. Orig. art. has: 4 figures and 24 formulas.

SUB CODE: 17, 09 / SUBM DATE: 28Apr66 / ORIG REF: 006 / OTH REF: 002

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ACC NR: AT6022366 SOURCE CODE: UR/0000/66/000/000/0029/0037

AUTHOR: Babushkin, Ye. F.

ORG: none

TITLE: Mean frequency of coincidence of spikes in random processes

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya teorii informatsii. Doklady. Moscow, 1966, 29-37

TOPIC TAGS: random process, random noise signal

ABSTRACT: If we have n continuous random processes $x_1^*(t), x_2^*(t), \ldots, x_n^*(t)$ with at least doubly-differentiable autocorrelation functions and if $W(x_1, x_2, \ldots, x_n; \dot{x}_1, \dot{x}_2, \ldots, \dot{x}_n)$ is the joint density of probabilities of the processes and their first derivatives taken simultaneously (time coincidence), then the mean frequency of coincidence of the processes is given by: $\mu_{nn}(a_1, a_2, \ldots, a_n) = \frac{1}{T}\int_0^T \left\{\sum_{k=1}^{n} \frac{\partial}{\partial a_k}\left(-P_{nn}^{k}\right)\right\} dt$, where

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$P^{*}_{nn} = \int_{a_1}^{\infty} dx_1 \int_{\beta_2}^{\infty} dx_2 \ldots \int_{a_n}^{\infty} dx_n \int_{0}^{\infty} \dot{x}_k W(x_1, x_2, \ldots, x_n, \dot{x}_k) d\dot{x}_k$. A number of particular cases of this mean-frequency formula are considered; among them, the case of coincidence of the instantaneous values, envelopes, and phases of stationary normal signals at the output of a symmetrical two-channel linear selective system. Orig. art. has: 5 figures and 26 formulas.

SUB CODE: 17, 12 / SUBM DATE: 28Apr66 / ORIG REF: 003 / OTH REF: 002

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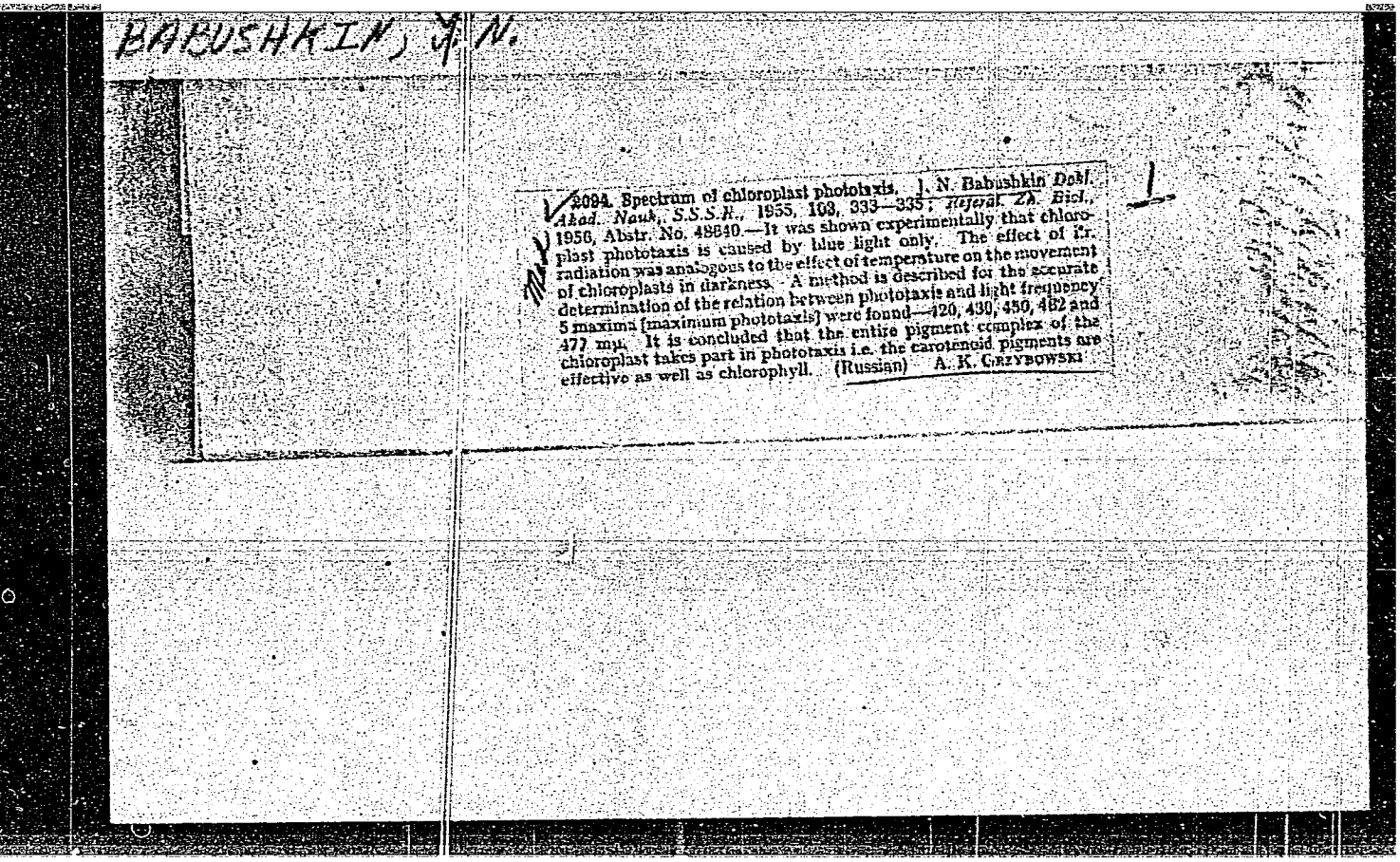

BABUSHKIN, Y. N.

2084. Spectrum of chloroplast phototaxis. Y. N. Babushkin *Dokl. Akad. Nauk, S.S.S.R.*, 1955, 103, 333—335; *Referat. Zh. Biol.*, 1956, Abstr. No. 48840.—It was shown experimentally that chloroplast phototaxis is caused by blue light only. The effect of ir. radiation was analogous to the effect of temperature on the movement of chloroplasts in darkness. A method is described for the accurate determination of the relation between phototaxis and light frequency. 5 maxima [maximum phototaxis] were found—420, 430, 450, 462 and 477 mμ. It is concluded that the entire pigment complex of the chloroplast takes part in phototaxis i.e. the carotenoid pigments are effective as well as chlorophyll. (Russian) A. K. GRZYBOWSKI

BABUSHKIN, Yu. S.

137-58-5-9511

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 100 (USSR)

AUTHORS: Malashenko, I.V., Babushkin, Yu.S.

TITLE: A Contactless Micrometer in the Tinplate Rolling Shop of the Zaporozhstal' Plant (Beskontaktnyy mikrometr v zhestekatal'nom tsekhe zavoda "Zaporozhstal'")

PERIODICAL: Byul. nauchno-tekhn. inform. Ukr. n.-i. in-t metallov, 1957, Nr 2, pp 64-69

ABSTRACT: A description is presented of the apparatus constituting the TsLA-designed contactless nucleonic micrometer installed on 2 cold strip mills in the tinplate rolling shop at the Zaporozhstal' Plant. A schematic diagram of the unit and an explanation of its basic principles of operation are presented. The instruments employ radioactive isotopes the half-lives of which provide long-term accuracy of within ±3% in measuring the thickness of strip rolled at this plant. The employment of contactless micrometers has afforded a considerable reduction in rejects due to uneven thickness, and has also ensured stable measurement operations and a high level of accuracy of within ±5 microns, has made possible measurement of the thickness of strip

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being rolled at points other than the side edge, has improved the working conditions of the rolling-mill operator, and has brought up the subject of increasing strip rolling speed. TsLA micrometers represent only the first steps in the direction of automation of cold rolling of tinplate. Under conditions of complete automation, the instrument will be used not only to measure the thickness of the rolled product but also as a pick-up of command impulses for a special relay governing the operation of the screwdown motors of the mill.

A.N.

1. Metals--Processing 2. Industrial plants--Quality control 3. Quality control --Equipment 4. Isotopes (Radioactive)--Applications

BABUSHKIN, Yu.S.

Noncontact micrometers. Biul.tekh.-ekon.inform. no.5:18-20 '59. (MIRA 12:8)

(Micrometer)

VESTEROV, I.V.; BABUSHKIN, Z.I.; PETRUNIN, A.D.

Clinical aspects and diagnosis of phytobeoars of the stomach. Vest. khir. Grekova, Leningr. 72 no.1:47-48 Jan-Feb 1952. (CIML 22:1)

1. Of Yalta Municipal Hospital (Head Physician -- T. P. Belonenko).

BABUSHKIN, Z. I.

"Clinicoroentgenographical Inspection of Pneumosclerosis of Toxic Origin." Cand Med Sci, Central Inst for the Advanced Training of Physicians. (VM, 24 Sep 54)

SO: Sum 432, 29 Mar 55